

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Masayuki SAITO

Group Art Unit: Unknown

Application No.: Not Yet Assigned

Examiner: Unknown

Filed: Concurrently Herewith

Attorney Dkt. No.: 108384-00005

For: LOW-PRESSURE CVD APPARATUS AND METHOD OF MANUFACTURING A THIN FILM

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Date: December 4, 2001

Sir:

Prior to initial examination of the application, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please amend the specification by inserting before the first line the sentence--
This nonprovisional application claims the benefit of U.S. Provisional Application No. 60/254,193, filed December 11, 2000.

IN THE CLAIMS:

Please amend claims 3-8 as follows:

3. (Amended) The LPCVD apparatus according to claim 1, wherein the honeycomb-structure cylindrical fillers have holes with a maximum diameter of 0.5 to 10 mm.

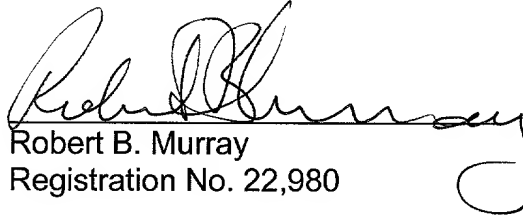
4. (Amended) The LPCVD apparatus according to claim 1, wherein said apparatus is provided with a trap-pressure-regulating valve for adjusting the internal pressure in the trap, and the exhaust pump.
5. (Amended) The LPCVD apparatus according to claim 1, whwerin said apparatus is provided with a back-flow valve for preventing a back flow of the used raw material in the trap, said back-flow valve being located between the reactor and the trap.
6. (Amended) The LPCVD apparatus according to claim 1, wherein said apparatus is connected with a first and a second pipes and provided with a by-pass pipe which bypasses the trap, said first pipe connecting the reactor and the trap and said second pipe connecting the trap and the pump.
7. (Amended) The LPCVD apparatus according to claim 1, wherein said by-pass pipe is provided at the both ends thereof with a back-flow valve.
8. (Amended) A method of manufacturing a thin film with the use of the LPCVD apparatus, said apparatus defined in claim 1, wherein an internal pressure in the trap is kept equal to or lower than that in the reactor.

REMARKS

Claims 1-8 are pending in this application. By this Amendment, claims 3-8 are amended to delete multiple dependency. No new matter is contained in the amendments.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 01-2300.

Respectfully submitted,


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MARKED UP CLAIMS

What is claimed is:

1. An LPCVD apparatus comprising: a container for
accommodating an organometallic compound, said compound
5 serving as a raw material; a heating means for heating the
container and vaporizing the organometallic compound to
obtain a raw material gas; a reactor for accommodating a
substrate on which a thin film being precipitated; an
exhaust pump for maintaining a low pressure atmosphere
10 within the reactor; and a trap provided on the upstream of
the exhaust pump and cooling used raw material gas supplied
from the reactor,

wherein said trap is provided with honeycomb-
structure cylindrical fillers in a flowing passage through
45 which the used raw material flows.

2. The LPCVD apparatus according to claim 1, wherein
the length of the honeycomb-structure cylindrical fillers is
in a range of 0.01 to 1.0 m in a direction along which the
20 used raw material flows.

3. The LPCVD apparatus according to claim 1 ^{or 2} ~~2~~
wherein the honeycomb-structure cylindrical fillers have
holes with a maximum diameter of 0.5 to 10 mm.

4. The LPCVD apparatus according to [claims 1 to 3]
claim 1

wherein said apparatus is provided with a trap-pressure-regulating valve for adjusting the internal pressure in the trap, said regulating valve being located between the trap and the exhaust pump.

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5. The LPCVD apparatus according to ^{claim 1} [claims 1 to 4] wherein said apparatus is provided with a back-flow valve for preventing a back flow of the used raw material in the trap, said back-flow valve being located between the reactor and the trap.

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6. The LPCVD apparatus according to ^{claim 1} [claims 1 to 5] wherein said apparatus is connected with a first and a second pipes and provided with a by-pass pipe which bypasses the trap, said first pipe connecting the reactor and the trap and said second pipe connecting the trap and the pump.

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7. The LPCVD apparatus according to ^{claim 1} [claims 1 to 6] wherein said by-pass pipe is provided at the both ends thereof with a back-flow valve.

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8. A method of manufacturing a thin film with the use of the LPCVD apparatus, said apparatus defined in ^{claim 1} [claims 1 to 7] wherein an internal pressure in the trap is kept equal to or lower than that in the reactor.

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